

**WHAT IS CLAIMED IS:**

1                   1.       A method for treating a blood vessel, said method comprising injecting  
2   an estrogen into a location beyond the endothelium of the blood vessel.

1                   2.       A method as in claim 1, wherein the blood vessel is an artery.

1                   3.       A method as in claim 2, wherein the artery is a coronary artery.

1                   4.       A method as in claim 1, wherein the estrogen is an estradiol.

1                   5.       A method as in claim 4, wherein the estradiol is selected from the  
2   group consisting of 17-beta-estradiol and estradiol cypionate.

1                   6.       A method as in claim 1, wherein the blood vessel is at risk of  
2   hyperplasia.

1                   7.       A method as in claim 6, wherein the estrogen is injected proximate the  
2   region of hyperplasia risk.

1                   8.       A method as in claim 1, wherein the blood vessel has regions of  
2   vulnerable plaque.

1                   9.       A method as in claim 8, wherein the estrogen is injected proximate a  
2   region of vulnerable plaque.

1                   10.      A method as in claim 1, wherein injecting comprises introducing a  
2   catheter into a lumen of the blood vessel and advancing a needle from the catheter, wherein  
3   the estrogen is injected through the needle.

1                   11.      A method as in claim 10, wherein the needle is advanced into a  
2   perivascular space beyond the outside of the endothelium.

1                   12.      A method as in claim 11, wherein the needle is advanced into the  
2   adventia surrounding the blood vessel.

1                   13.      A method as in claim 1, wherein the estrogen is injected in an amount  
2   sufficient to permeate circumferentially around the endothelium and into the adventia over an  
3   axial length of at least 1 cm.

1                    14.     A method as in claim 1, wherein the needle is advanced in a radial  
2     direction to a depth in the adventitia equal to at least 10% of the mean luminal diameter at the  
3     blood vessel location.

1                    15.     A method as in claim 14, wherein the depth is a distance in the range  
2     from 10% to 50% of the mean luminal diameter.

1                    16.     A system for treating a blood vessel, said system comprising:  
2                    an amount of an estrogen, and  
3                    an intravascular catheter having a needle for injecting the estrogen into a  
4     location beyond the endothelium of the blood vessel.